

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of)
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Rainer HINTSCHE) Group Art Unit: N/A
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Application No.: Continuation-in-Part of) Examiner: N/A
Application No. 09/214,493)
)
Filed: July 10, 2001)
)
For: SENSOR AND/OR SEPARATING)
ELEMENT AND PROCESS FOR)
THE PRODUCTION AND USE)
THEREOF)

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination on the merits, please amend the above-captioned patent application as follows.

IN THE CLAIMS:

Please replace claims 22-34 as follows.

22. A process according to claim 19, characterised in that the membrane is produced from mechanically stable, membrane-forming, inorganic material.

23. A process according to claim 19, characterised in that the membrane is produced from silicon, one or more silicon compounds and/or a material containing silicon.

24. A process according to claim 14, characterised in that a further metallic film or one or more double layers of metallic film plus semi-permeable membrane are applied to the exterior of one or both of the semi-permeable layers, a final metallic film being optionally applied to the outermost semi-permeable membrane and all the further metallic films being perforated in the region of the through-opening.

25. A process according to claim 1, characterised in that one or more metallic films are produced from segments separate from one another, where preferably each segment is provided with or electrically conductively connected to at least one separate terminal.

26. A process according to claim 14, characterised in that at least one semi-permeable layer, preferably all the semi-permeable layers, is/are formed from polymer, preferably organic and preferably adherent polymer.

27. A process according to claim 14, characterised in that the perforations are produced with a diameter or maximum diameter ranging between 0.1 and 50 μm , preferably 1 and 10 μm .

28. A process according to claim 14, characterised in that the semi-permeable layer(s) is/are applied by a spin-off process, centrifugal or fluidized-bed coating, or spin- or jet coating.

29. A process according to claim 14, characterised in that chemical wet-etching, plasma dry-etching, electro-erosion or thermal melting-out is employed as means of forming the through-opening(s).

30. A process according to claim 14, characterised in that all or a part of the perforations are formed by photolithography in association with dry- or wet etching or by means of laser- or particle beam processing.

31. A process according to claim 14, characterised in that all the metallic films or a part of the metallic films is/are applied by sputtering, vapour deposition, plating, electrolytic deposition or current-free electrolytic deposition.

32. A process according to claim 14, characterised in that the membrane is produced as an ultra-thin membrane with a thickness ranging between 20 μm and 100 nm.

33. Use of the sensor- and/or separating element formed in accordance with claim 1 or produced in accordance with claim 14 as sub-element for the detection of electromagnetically active molecules.

34. Use of the sensor- and/or separating element formed in accordance with claim 1 or produced in accordance with claim 14 for the separation of molecules through the semi-permeable layer(s).

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Entry of the foregoing is respectfully requested.

By the above amendments, claims 22-34 have been amended to eliminate multiple dependencies. Claim 27 has been amended to correct a typographical error.

Should the Examiner have any questions concerning the subject application, a telephone call to the undersigned would be appreciated.

Respectfully submitted,

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Attachment to Preliminary Amendment dated July 10, 2001

22. A process according to claim 19, [20 or 21,] characterised in that the membrane is produced from mechanically stable, membrane-forming, inorganic material.

23. A process according to claim [one of claims] 19, [20, 21 or 22,] characterised in that the membrane is produced from silicon, one or more silicon compounds and/or a material containing silicon.

24. A process according to claim 14, [one of Claims 14 to 23,] characterised in that a further metallic film or one or more double layers of metallic film plus semi-permeable membrane are applied to the exterior of one or both of the semi-permeable layers, a final metallic film being optionally applied to the outermost semi-permeable membrane and all the further metallic films being perforated in the region of the through-opening.

25. A process according to claim 1, [one of the preceding process claims,] characterised in that one or more metallic films are produced from segments separate from one another, where preferably each segment is provided with or electrically conductively connected to at least one separate terminal.

Attachment to Preliminary Amendment dated July 10, 2001

26. A process according to claim 14, [one of claims 14 to 25,] characterised in that at least one semi-permeable layer, preferably all the semi-permeable layers, is/are formed from polymer, preferably organic and preferably adherent polymer.

27. A process according to claim 14, [one of claims 14 to 26,] characterised in that the perforations are produced with a diameter or maximum diameter ranging between [0,1] 0.1 and 50 μm , preferably 1 and 10 μm .

28. A process according to claim 14, [one of claims 14 to 27,] characterised in that the semi-permeable layer(s) is/are applied by a spin-off process, centrifugal or fluidized-bed coating, or spin- or jet coating.

29. A process according to claim 14, [one of claims 14 to 28,] characterised in that chemical wet-etching, plasma dry-etching, electro-erosion or thermal melting-out is employed as means of forming the through-opening(s).

30. A process according to claim 14, [one of Claims 14, to 29,] characterised in that all or a part of the perforations are formed by photolithography in association with dry- or wet etching or by means of laser- or particle beam processing.

09/214,493-015200-066

Attachment to Preliminary Amendment dated July 10, 2001

31. A process according to claim 14, [one of claims 14 to 30,] characterised in that all the metallic films or a part of the metallic films is/are applied by sputtering, vapour deposition, plating, electrolytic deposition or current-free electrolytic deposition.

32. A process according to claim 14, [one of claims 14 to 31,] characterised in that the membrane is produced as an ultra-thin membrane with a thickness ranging between 20 μm and 100 nm.

33. Use of the sensor- and/or separating element formed in accordance with claim 1 [one of claims 1 to 13] or produced in accordance with claim 14 [one of claims 14 to 32] as sub-element for the detection of electromagnetically active molecules.

34. Use of the sensor- and/or separating element formed in accordance with claim 1 [one of claims 1 to 13] or produced in accordance with claim 14 [one of claims 14 to 32] for the separation of molecules through the semi-permeable layer(s).